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U.S. DEPARTMENT OF AGRICULTURE
Agricultural Research Service
Animal Health Division

ARS 91-102
JULY 1971

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PROCUREMENT SECTION
CURRENT SERIAL RECORDS

NATIONAL TICK SURVEILLANCE PROGRAM

CALENDAR YEAR 1970

During calendar year 1970, the collection and submission of ticks from native and imported animals was down approximately 29 percent from 1969. There were 3,025 species collections in 1970, compared with 4,262 in 1969.

Boophilus Outbreak Eradicated in Dimmit County, Tex.

The last tick-infested premises in Dimmit County was released from State quarantine in May 1970. This climaxed an all-out 20-month tick eradication drive to prevent the establishment and spread of *Boophilus* ticks in the United States.

The Dimmit County outbreak was detected on September 1, 1968, on a large ranch in southwestern Dimmit County. Within 3 weeks, established tick infestations were found on two other ranches about 25 miles away. The Texas Animal Health Commission placed all known infested and exposed ranches under State quarantine. A force of State and Federal inspectors was dispatched to Dimmit County to fully investigate the extent of the outbreak and to carry out all procedures necessary to eradicate the *Boophilus* ticks. Thorough studies were made of all livestock movements from known infested or exposed premises and appropriate States were notified.

In 1969 three additional infestations were found in Dimmit County. They were all in the immediate vicinity of some of the 1968 infestations. A recurrence of ticks also occurred in one of the pastures on the ranch where the original infestation was found.

Although several States had received livestock shipments from the infested ranches before the discovery of the ticks, only one infestation was found outside Dimmit County--in a feedlot in Patricio County, Tex.

The tick outbreak in Dimmit County clearly underlines the necessity of maintaining a continued surveillance effort to rapidly detect *Boophilus* spp. and many other economically important species of ticks often found on exotic game animals and livestock offered for importation into the United States.

All Animal Health Division personnel and cooperating State personnel are requested to routinely collect and submit all ticks found on zoo-type animals and livestock when inspections are made at air, land, and ocean ports of entry into the United States.

The Tropical Bont Tick Situation on St. Croix, U.S. Virgin Islands

The treatment phase of the program to eradicate *Amblyomma variegatum*, the tropical bont tick, was terminated in May 1970. Only one infestation of *A. variegatum* was found on St. Croix in 1969. This consisted of a single male specimen collected from a bull at the Insular abattoir on St. Croix on August 7, 1969. Thorough inspection of all animals on the farm of origin failed to reveal additional ticks. The last prevoius record of the tropical bont tick before August 1969 was a collection of five larvae from a mongoose in April 1968.

No *A. variegatum* infestations were revealed in 1970. However, on March 17, 1971, a single male tropical bont tick was found on a sheep at the abattoir. Inspection of all cattle, sheep, and horses on the farm of origin resulted in the detection of two more male ticks, one on a cow and one on a sheep.

Whether this finding constitutes a new infestation on the island or is an extension of the previous infestation has not been determined. The fact that only male *A. variegatum* ticks have been found in the last two infestations is somewhat encouraging. The length of time the unfed adult tick, the male in this case, is capable of surviving away from a host in nature is unknown; but, reportedly, under laboratory conditions, the tropical bont tick has been able to survive up to 732 days. Also, the males of several African species of *Amblyomma* have been known to live on a host for periods of up to 8 months. Thus, the possibility does exist that the males found in March 1971 are directly connected with the original infestation, but as long as only males are present the infestation is obviously self-limiting.

The tropical bont tick was initially found on livestock on St. Croix in August 1967. Soon afterward five adjacent farms on the western end of the island were also found to be infested. These findings markes the first time that *A. variegatum* had been found established on U.S. territory.

Amblyomma variegatum originated in Africa and was apparently introduced into the West Indies (Antigua) in the mid-to-late 1800's. It subsequently spread to St. Kitts and Guadeloupe.

This parasite is destructive to livestock; in addition to producing large, painful wounds and sucking much blood, it is a vector of *Rickettsia ruminantium*, the causative agent of heartwater in cattle, sheep, and goats. It also transmits the virus of Nairobi sheep disease. Fortunately, there is no evidence to indicate that these diseases have been introduced into the U.S. Virgin Islands.

Boophilus microplus and *Dermacentor nitens* Eradication Campaign in the U.S. Virgin Islands

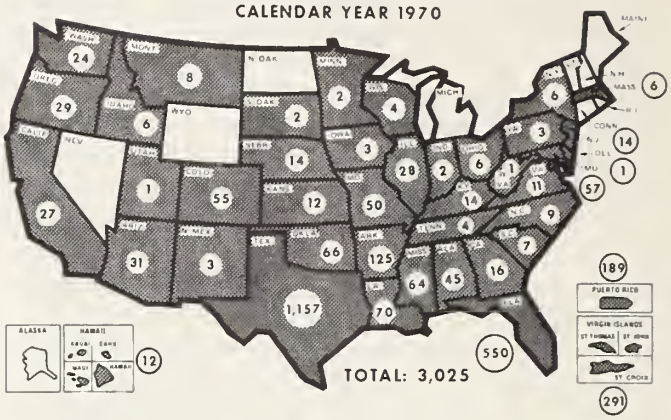
The Agricultural Research Service, Animal Health Division, in cooperation with the U.S. Virgin Islands Department of Agriculture, has begun a campaign to eradicate *Boophilus microplus* and *Dermacentor nitens* from the Virgin Islands. The livestock owners on St. Croix have maintained an interest in a *B. microplus* eradication program since the early 1960's. Studies were begun in 1962 to determine the role the white-tailed deer (*Odocoileus virginianus*)plays as a potential host for *B. microplus*. These efforts were expanded from 1964 to 1967 with a cooperative effort by the Southeastern Cooperative Wildlife Disease Study, the U.S. Department of Agriculture, the U.S. Department of the Interior and the livestock owners of St. Croix.

The final eradication plans were formulated in 1970, and the supervisory personnel and equipment began arriving in early 1971. The program began on St. Croix in April 1971 with the systematic treatment of all cattle, horses, sheep, and goats. Since all horses must also be treated to eliminate *B. microplus*, it was decided that with a little additional effort to treat the ears, *Dermacentor nitens* could also be eradicated. By July 1971 the program should be in full operation on St. Croix. If the campaign is successful, efforts will then be made to rid St. Thomas and St. John of these ticks.

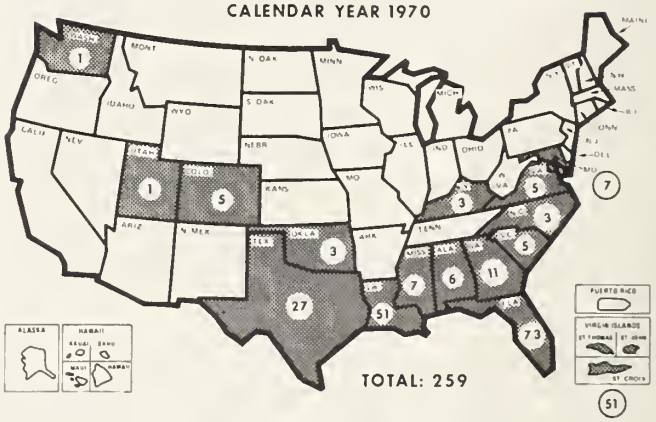
REPORT OF ALL TICKS COLLECTED
CALENDAR YEAR 1970

STATE	TOTAL	CATTLE	DOGS	HORSES and MULES	ZOO ANIMALS and MISC.	NATIVE WILDLIFE	ANIMALS OFFERED FOR ENTRY
TOTAL	3,025	1,311	309	671	182	259	293
Alabama	45	24	11		3	6	1
Alaska							
Arizona	31	2	1	1	1		26
Arkansas	125	96	16	5	8		
California	27	18	1		1		7
Colorado	55	9	21	6	14	5	
Connecticut							
Delaware	1		1				
Florida	550	92	6	362	13	73	4
Georgia	16	4			1	11	
Hawaii	12	6	6				
Idaho	6	1	4		1		
Illinois	28	10	6		12		
Indiana	2	2					
Iowa	3		3				
Kansas	12	4	5		3		
Kentucky	14	1	6	1	3	3	
Louisiana	70	16	3			51	
Maine							
Maryland	57	3	29	1	16	7	1
Massachusetts	6		4		2		
Michigan							
Minnesota	2		2				
Mississippi	64	37	19		1	7	
Missouri	50	22	22		6		
Montana	8		5	2	1		
Nebraska	14	11	3				
Nevada							
New Hampshire							
New Jersey	14		2	11	1		
New Mexico	3	2			1		
New York	6						6
North Carolina	9		1		5	3	
North Dakota							
Ohio	6		5		1		
Oklahoma	66	52	4		6	3	1
Oregon	29	9	12	4	4		
Pennsylvania	3		2		1		
Rhode Island							
South Carolina	7	2				5	
South Dakota	2	1	1				
Tennessee	4	4					
Texas	1,157	657	57	131	38	27	247
Utah	1					1	
Vermont							
Virginia	11		3		3	5	
Washington	24		16	2	5	1	
West Virginia	1		1				
Wisconsin	4		3		1		
Wyoming							
Puerto Rico	189	121	8	55	5		
Virgin Islands	291	105	20	90	25	51	

TICK COLLECTIONS FROM ALL HOSTS
CALENDAR YEAR 1970



TICKS COLLECTED FROM NATIVE WILDLIFE
CALENDAR YEAR 1970



REPORT OF TICKS COLLECTED

PERIOD: CALENDAR YEAR 1970 — HOST: NATIVE WILDLIFE

STATE	TOTAL	AMBLYOMMA AMERICANUM	AMBLYOMMA CAJENNENSE	AMBLYOMMA INEQUATOR	AMBLYOMMA MACULATUM	AMBLYOMMA SPP	ARGAS PERSICUS	BOOPHILUS ANNULATUS	BOOPHILUS MICROPLUS	BOOPHILUS SPP	DERMACENTOR ALBIPICTUS	DERMACENTOR NIGROLINEATUS	DERMACENTOR NITENS	DERMACENTOR OCCIDENTALIS	DERMACENTOR VARIABILIS	DERMACENTOR SPP	HAEMAPHYSALIS LEPORISPALUSTRIS	IXODES CONEPATI	IXODES PACIFICUS	IXODES SCAPULARIS	IXODES SPP	ORNITHODOROS SPP	OTOBIUS MEGNINI	RHIPICEPHALUS SANGUINEUS	RHIPICEPHALUS SPP
TOTAL	259	45	1	--	10	2	--	--	31	--	7	16	12	--	41	1	--	10	2	1	67	5	8	--	--	--
Alabama	6	3D			2D																	1PG[a]				
Alaska																										
Arizona																										
Arkansas																										
California																										
Colorado	5										4D					1D										
Connecticut																										
Delaware																										
Florida	73	4D 1RC			6D	1CO[d]									28RC 10PO 1RC				2SK		7RC 10D 1PO	2RC[e]				
Georgia	11	5D																			6D					
Hawaii																										
Idaho																										
Illinois																										
Indiana																										
Iowa																										
Kansas																										
Kentucky	3	1S										1D			1S											
Louisiana	51	10D			1D																40D					
Maine																										
Maryland	7	6D													1F											
Massachusetts																										
Michigan																										
Minnesota																										
Mississippi	7	4D																			2D	1BI[a]				
Missouri																										
Montana																										
Nebraska																										
Nevada																										
New Hampshire																										
New Jersey																										
New Mexico																										
New York																										
North Carolina	3	1D										1D										1D				
North Dakota																										
Ohio																										
Oklahoma	3	1B 1EK									1EK															
Oregon																										
Pennsylvania																										
Rhode Island																										
South Carolina	5	1D										3D									1D					
South Dakota																										
Tennessee																										
Texas	27	1D 1CO	1CO		1CO	1BC[h]					1D	11**					1W 9R									
Utah	1										1D															
Vermont																										
Virginia	5	3D																								
Washington	1																			1CD						
West Virginia																										
Wisconsin																										
Wyoming																										
Puerto Rico																										
Virgin Islands	51							1M 30D				12D										8M[i]				

Key to Host

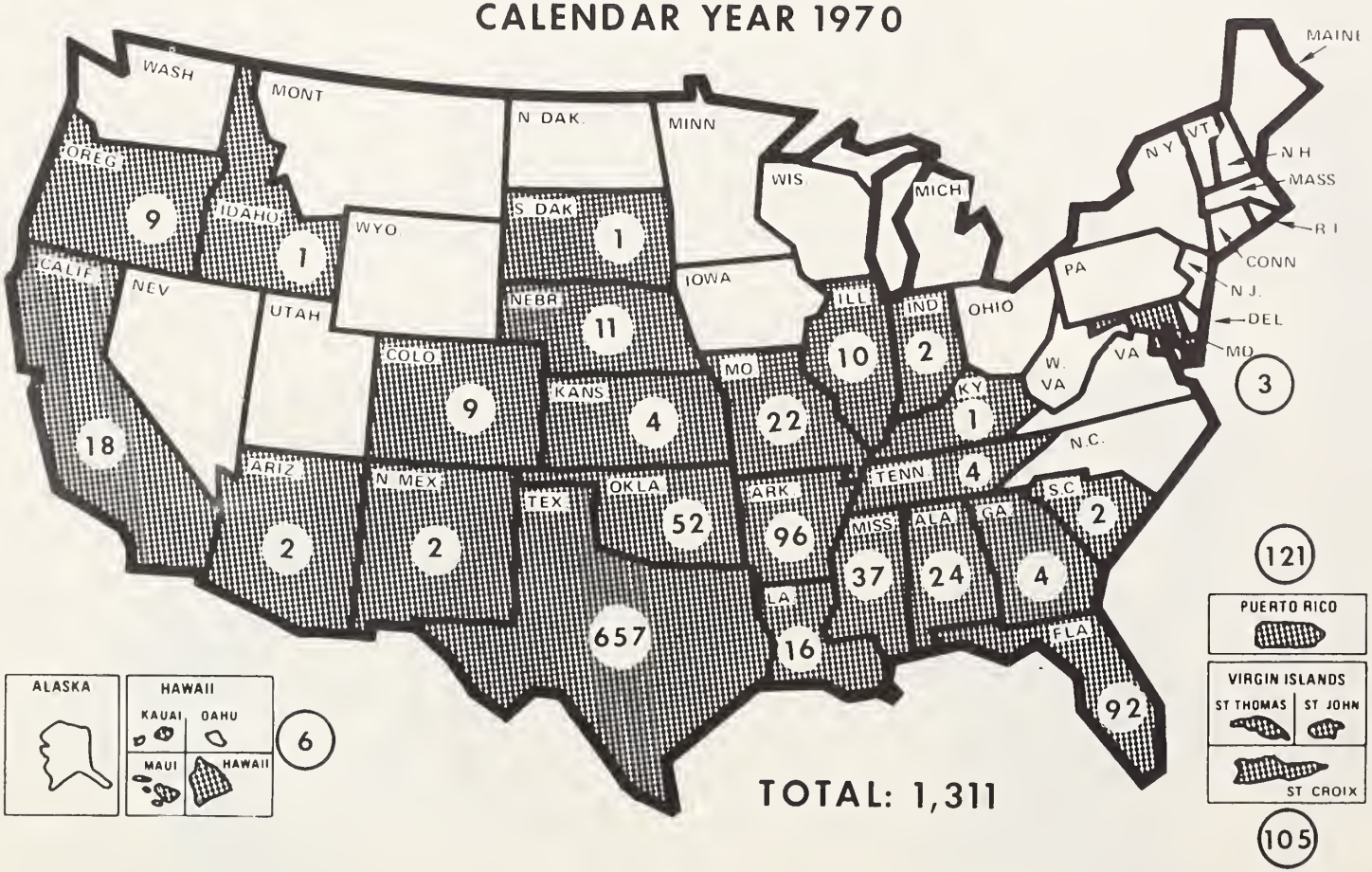
B	Bison	M	Mongoose
BC	Bobcat	PG	Purple Grackle
BI	Bird	PO	Opossum
CO	Coyote	R	Rabbit
D	Deer	RC	Raccoon
EK	Elk	S	Squirrel
F	Fox	SK	Skunk
GO	Gopher (tortoise)	W	Owl
J	Javalina (peccary)	**	1S, 1J, 1RC, 5BC, 2CO, 1BI[a]

Key to Species

a Ixodes brunneus
d Amblyomma tuberculatum
e Ixodes texanus
h Amblyomma inornatum
i Ornithodoros puertoricensis

TICKS COLLECTED FROM CATTLE

CALENDAR YEAR 1970



REPORT OF TICKS COLLECTED

PERIOD: CALANDER YEAR 1970 | HOST: CATTLE

STATE	TOTAL	AMBLYOMMA AMERICANUM	AMBLYOMMA CAJENNENSE	AMBLYOMMA IMITATOR	AMBLYOMMA MACULATUM	AMBLYOMMA SPP.	ARGAS PERSICUS	BOOPHILUS ANNULATUS	BOOPHILUS MICROPLUS	BOOPHILUS SPP.	DERMACENTOR ALBIPICTUS	DERMACENTOR NIGROLINEATUS	DERMACENTOR NITENS	DERMACENTOR OCCIDENTALIS	DERMACENTOR VARIABILIS	DERMACENTOR [illegible]	DERMACENTOR [illegible]	DERMACENTOR SPP.	HAEMAPHYSALIS LEPORIS-PALUSTRIS	IXODES CONFERI	IXODES PACIFICUS	IXODES SCAPULARIS	IXODES SPP.	ORNITHODOROS SPP.	OTOBIUS MEGNINI	RHIPICEPHALUS SANGUINEUS	RHIPICEPHALUS SPP.
TOTAL	1,311	503	24	5	155	5	--	31	102	2	51	15	136	3	155	1	1	--	--	--	1	53	--	2	61	5	--
Alabama	24	5			6							1			6							4			1	1	
Alaska																											
Arizona	2										2																
Arkansas	96	75													16							3			2		
California	18													3	3	1					1			1[b] 1	8		
Colorado	9	2																							7		
Connecticut																											
Delaware																											
Florida	92	19			37										8							28					
Georgia	4	2			1										1												
Hawaii	6								2*																3	1*	
Idaho	1										1																
Illinois	10	8													2												
Indiana	2	1													1												
Iowa																											
Kansas	4	1										1			1										1		
Kentucky	1														1												
Louisiana	16	5			9																	2					
Maine																											
Maryland	3	1													2												
Massachusetts																											
Michigan																											
Minnesota																											
Mississippi	37	18			11										6							2					
Missouri	22	17													5												
Montana																											
Nebraska	11	9													2												
Nevada																											
New Hampshire																											
New Jersey																											
New Mexico	2										2																
New York																											
North Carolina																											
North Dakota																											
Ohio																											
Oklahoma	52	17			5						2	2			2							7			17		
Oregon	9										2														7		
Pennsylvania																											
Rhode Island																											
South Carolina	2	1													1												
South Dakota	1	1																									
Tennessee	4	1													3												
Texas	657	320	24	5	86	3[h] 2		31	10	2	42	11			95		1					7			15	3	
Utah																											
Vermont																											
Virginia																											
Washington																											
West Virginia																											
Wisconsin																											
Wyoming																											
Puerto Rico	121												121														
Virgin Islands	105								90				15														

*Submitted by Hawaii station, collected in the U. S. Trust Territory of the Pacific Islands.

Key to Species

b Ornithodoros turicata
h Amblyomma inornatum

TICK COLLECTIONS
FROM ZOO ANIMALS AND MISCELLANEOUS HOSTS

CALENDAR YEAR 1970

TOTAL: 182

REPORT OF TICKS COLLECTED

PERIOD: CALENDAR YEAR 1970

HOST ZOO ANIMALS and MISCELLANEOUS HOST (Human, Sheep, etc.)

STATE	TOTAL	AMBLYOMMA AMERICANUM	AMBLYOMMA CAJENNENSE	AMBLYOMMA INFILATUM	AMBLYOMMA MACULATUM	AMBLYOMMA SPP.	ARGAS PERSICUS	BOOPHILUS ANNULATUS	BOOPHILUS MICROPLUS	BOOPHILUS SPP.	DERMACENTOR ALBIPICTUS	DERMACENTOR NIGROLINEATUS	DERMACENTOR NITENS	DERMACENTOR OCCIDENTALIS	DERMACENTOR VARIABILIS	DERMACENTOR ANDERSONI	DERMACENTOR SPP.	HAEMAPHYSALIS CHORDEILIS	IXODES COOKEI	IXODES PACIFICUS	IXODES SCAPULARIS	IXODES SPP.	ORNITHODORUS SPP.	OTOBIUS MEGNINI	RHIPICEPHALUS SANGUINEUS	RHIPICEPHALUS SPP.	MISCELLANEOUS
TOTAL	182	38	3	--	6	7	--	--	20	--	1	1	9	--	50	13	1	--	--	2	6	--	--	11	12	--	2
Alabama	3	1H			1H										1H												
Alaska																											
Arizona	1															1H											
Arkansas	8	4H 1Q 2C													1Y												
California	1																			1Q							
Colorado	14															1SH 1Q 6H								5Q	1Q		
Connecticut																											
Delaware																											
Florida	13				1SH 2Y 1H	1IG[c]									1Y 1Q						6SH						
Georgia	1																								1Q		
Hawaii																											
Idaho	1															1H											
Illinois	12														1OSH 1H 1Q												
Indiana																											
Iowa																											
Kansas	3														1Q 1C 1H												
Kentucky	3														1X 1Y 1C												
Louisiana																											
Maine																											
Maryland	16	1H 1Q				1SN[c] 1SN[f] 1BA									1RT 2C 1X 1Q 3H										1X 1H		1SN[g]
Massachusetts	2														2H												
Michigan																											
Minnesota																											
Mississippi	1	1H																									
Missouri	6	2H 1Q													2Y 1H												
Montana	1															1H											
Nebraska																											
Nevada																											
New Hampshire																											
New Jersey	1														1H												
New Mexico	1	1Q																									
New York																											
North Carolina	5	1H 2Y													1H										1X		
North Dakota																											
Ohio	1														1H												
Oklahoma	6	1SH 2Q 1H													1H									1SH			
Oregon	4															2H								1C	1X		
Pennsylvania	1														1X												
Rhode Island																											
South Carolina																											
South Dakota																											
Tennessee																											
Texas	38	6H 5Q 3G	3Y		1G				1Q		1Q	1X			2H 3C 1X 3Y		1C							2C 2G	2X 1H		
Utah																											
Vermont																											
Virginia	3	1X																							2X		
Washington	5	1CH				2BA[c]														1C							1BA[g]
West Virginia																											
Wisconsin	1														1Q												
Wyoming																											
Puerto Rico	5					1SN[c]							2Q 1G												1Q		
Virgin Islands	25								5Q 2N 4SH 8G				2SH 2G 2Q														

Key to Host

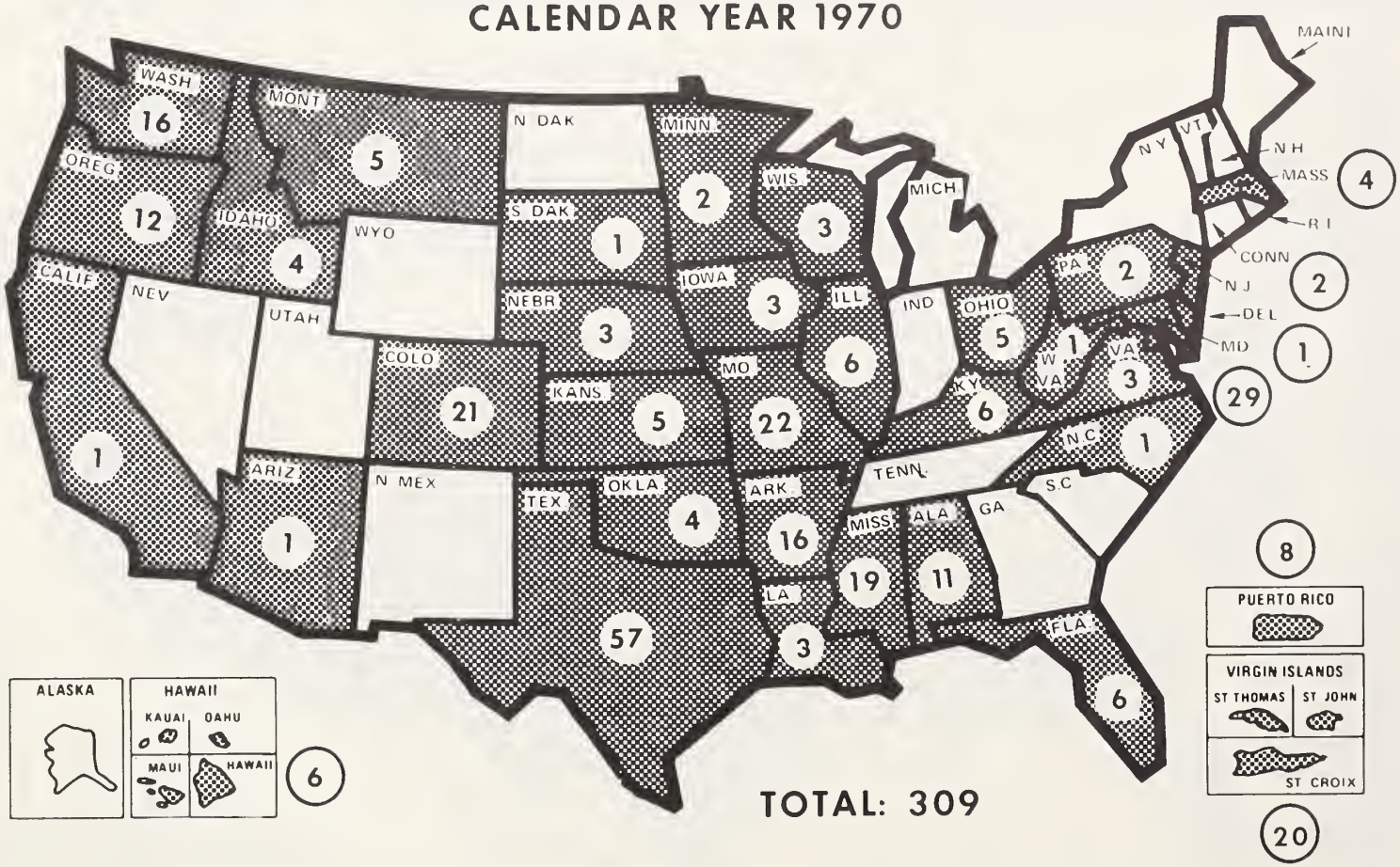
BA	Boa constrictor	Q	Host not given
C	Cat	RT	Rat
CH	Chicken	SH	Sheep
G	Goat	SN	Snake
H	Human	X	Inanimate object
IG	Iguana	Y	Swine

Key to Species

c	Amblyomma dissimile
f	Amblyomma helvolum
g	Aponomma sp.

TICKS COLLECTED FROM DOGS

CALENDAR YEAR 1970



TOTAL: 309

REPORT OF TICKS COLLECTED

PERIOD: CALENDAR YEAR 1970 | HOST: DOGS

STATE	TOTAL	AMBLYOMMA AMERICANUM	AMBLYOMMA CAYENNENSE	AMBLYOMMA MITATOR	AMBLYOMMA MACULATUM	AMBLYOMMA SPP.	ARGAS PERSICUS	BOOPHILUS ANNULATUS	BOOPHILUS MICROPLUS	BOOPHILUS SPP.	DERMACENTOR ALBIPICTUS	DERMACENTOR NIGROLINEATUS	DERMACENTOR NITENS	DERMACENTOR OCCIDENTALIS	DERMACENTOR VARIABILIS	DERMACENTOR LABIDUS (= D. SIMILIS)	DERMACENTOR SPP.	HAEMAPHYSALIS LEPORIS-PALUSTRIS	IXODES COOKEI	IXODES PACIFICUS	IXODES SCAPULARIS	IXODES SPP.	ORNITHODOROS SPP.	OTOBIUS MEGNINI	RHIPICEPHALUS SANGUINEUS	RHIPICEPHALUS SPP.
TOTAL	309	34	--	--	10	1	--	--	--	--	1	--	2	--	114	11	--	--	6	2	6	--	--	19	103	--
Alabama	11	1			2										3				1						4	
Alaska																										
Arizona	1																								1	
Arkansas	16	11													1										4	
California	1																								1	
Colorado	21															2					1			5	13	
Connecticut																										
Delaware	1														1											
Florida	6				1										1						2				2	
Georgia																										
Hawaii	6																								4* 2	
Idaho	4														1	2								1		
Illinois	6														5				1							
Indiana																										
Iowa	3	1													2											
Kansas	5														4										1	
Kentucky	6														5										1	
Louisiana	3																								3	
Maine																										
Maryland	29	5													21										3	
Massachusetts	4														2										2	
Michigan																										
Minnesota	2																		1						1	
Mississippi	19	2			6										5						2				4	
Missouri	22	8													14											
Montana	5														5											
Nebraska	3														3											
Nevada																										
New Hampshire																										
New Jersey	2																								2	
New Mexico																										
New York																										
North Carolina	1														1											
North Dakota																										
Ohio	5														3				1						1	
Oklahoma	4	2																			1			1		
Oregon	12															5								7		
Pennsylvania	2																								2	
Rhode Island																										
South Carolina																										
South Dakota	1														1											
Tennessee																										
Texas	57	4			1	1[h]									28				1						22	
Utah																										
Vermont																										
Virginia	3														2										1	
Washington	16										1				5	2				2				5	1	
West Virginia	1														1											
Wisconsin	3																		1						2	
Wyoming																										
Puerto Rico	8																								8	
Virgin Islands	20												2												18	

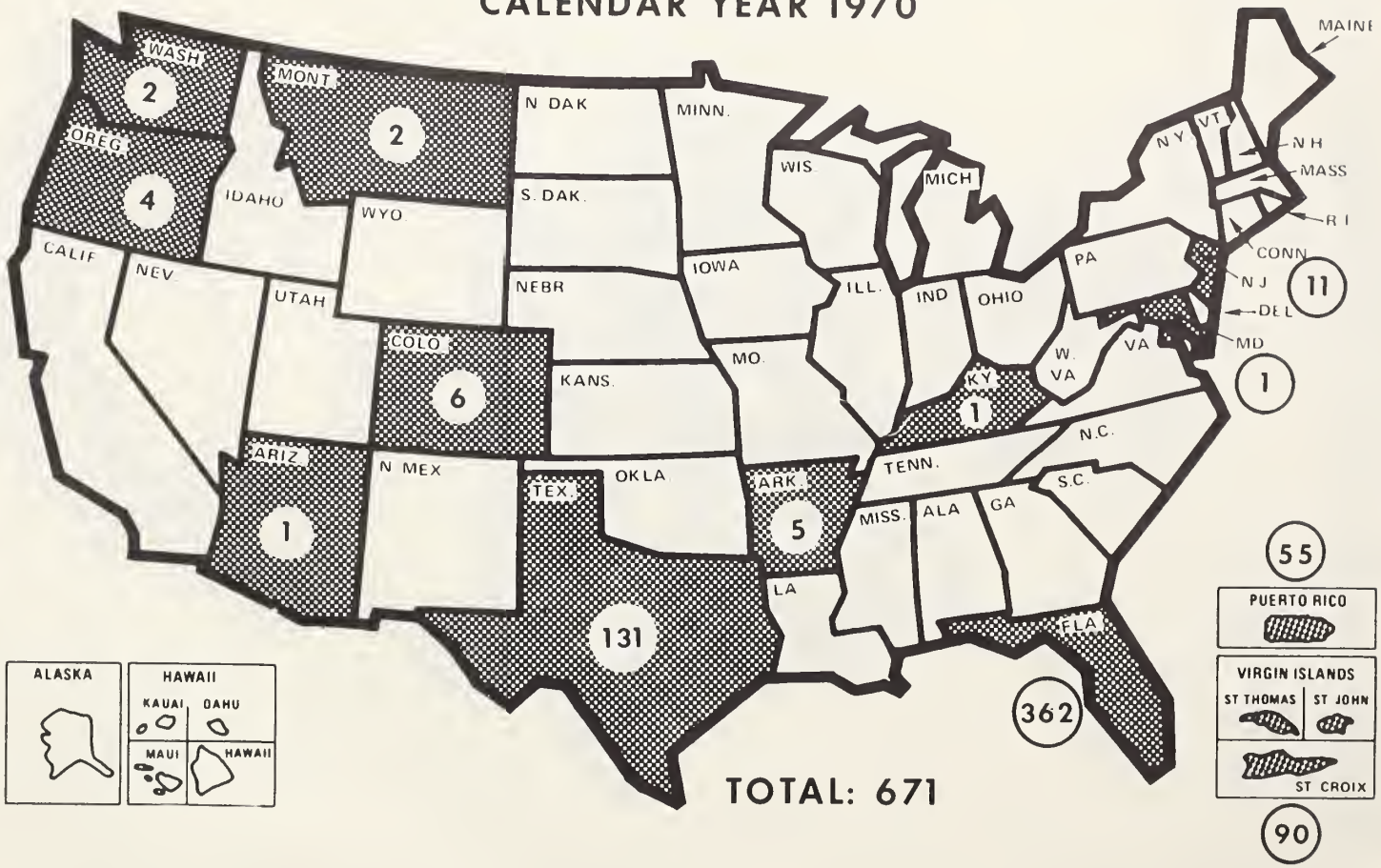
*Submitted by Hawaii station, collected in the U. S. Trust Territory of the Pacific Islands.

Key to Species

h Amblyomma inornatum

TICKS COLLECTED FROM HORSES AND MULES

CALENDAR YEAR 1970



TOTAL: 671

REPORT OF TICKS COLLECTED

PERIOD: CALENDAR YEAR 1970

HOST: HORSES & MULES

STATE	TOTAL	AMBLYOMMA AMERICANUM	AMBLYOMMA CAJENNENSE	AMBLYOMMA IMITATOR	AMBLYOMMA MACULATUM	AMBLYOMMA SPP.	ARGAS PERSICUS	BOOPHILUS ANNULATUS	BOOPHILUS MICROPLUS	BOOPHILUS SPP.	DERMACENTOR ALBIPICTUS	DERMACENTOR NIGROLINEATUS	DERMACENTOR NITENS	DERMACENTOR OCCIDENTALIS	DERMACENTOR VARIABILIS	DERMACENTOR SPP.	HAEMAPHYSALIS LEPORISPALUSTRIS	IXODES COOPERI	IXODES PACIFICUS	IXODES SCAPULARIS	IXODES SPP.	ORNITHODOROS SPP.	OTOBIUS MEGNINI	RHIPICEPHALUS SANGUINEUS	RHIPICEPHALUS SPP.
TOTAL	671	20	2	1	111	--	--	4	9	2	26	1	258	--	172	7	--	--	--	1	51	--	--	3	3	--
Alabama																										
Alaska																										
Arizona	1										1															
Arkansas	5	4													1											
California																										
Colorado	6										2					2								2		
Connecticut																										
Delaware																										
Florida	362	5			97						4		110		94						51			1		
Georgia																										
Hawaii																										
Idaho																										
Illinois																										
Indiana																										
Iowa																										
Kansas																										
Kentucky	1														1											
Louisiana																										
Maine																										
Maryland	1														1											
Massachusetts																										
Michigan																										
Minnesota																										
Mississippi																										
Missouri																										
Montana	2															2										
Nebraska																										
Nevada																										
New Hampshire																										
New Jersey	11	1													10											
New Mexico																										
New York																										
North Carolina																										
North Dakota																										
Ohio																										
Oklahoma																										
Oregon	4										1					3										
Pennsylvania																										
Rhode Island																										
South Carolina																										
South Dakota																										
Tennessee																										
Texas	131	10	2	1	14			4	4	2	17	1	9		65										2	
Utah																										
Vermont																										
Virginia																										
Washington	2										1								1							
West Virginia																										
Wisconsin																										
Wyoming																										
Puerto Rico	55												55													
Virgin Islands	90								5				84												1	

TICK COLLECTIONS
FROM ANIMALS OFFERED FOR IMPORTATION
CALENDAR YEAR 1970

TOTAL: 293

REPORT OF TICKS COLLECTED

PERIOD: CALENDAR YEAR 1970

TICKS FOUND ON ANIMALS OFFERED FOR ENTRY INTO THE UNITED STATES

STATE	TOTAL	AMBLYOMMA AMERICANUM	AMBLYOMMA CAJENNENSE	AMBLYOMMA IMITATOR	AMBLYOMMA MACULATUM	AMBLYOMMA SPP	ARGAS PERSICUS	BOOPHILUS ANNULATUS	BOOPHILUS MICROPLUS	BOOPHILUS SPP	DERMACENTOR ALBIPICTUS	DERMACENTOR NITENS	DERMACENTOR OCCIDENTALIS	DERMACENTOR VARIABILIS	DERMACENTOR SPP	HAEMAPHYSALIS LEPORISPALUSTRIS	IXODES COOKEI	IXODES PACIFICUS	IXODES SCAPULARIS	IXODES SPP	ORNITHODOROS SPP	OTOBIUS MEGNINI	RHIPICEPHALUS SANGUINEUS	RHIPICEPHALUS SPP.	MISCELLANEOUS
TOTAL	293	4	9	1	2	4	--	48	33	70	78	6	3	2	7	--	5	3	--	--	3	--	2	4	2	5	2
ARIZONA																											
Douglas	12										11 BO													1 BO			
Nogales	13										10 BO						1 BH[P]							1 E			1 RP[g]
Phoenix	1																1 BH[P]										
CALIFORNIA																											
Celexico	6													2 BO	2 BO								1 BO[b] 1 BO				
Los Angeles	1																									1 N[r]	
FLORIDA																											
Miami	3					1 IG[c]							2 E														
Tampa	1																										1 T[j]
MARYLAND																											
Baltimore	1		1 X																								
NEW YORK																											
New York***	6					12[n]																			1 HH	22[m] 22[k]	
TEXAS																											
Brownsville	58	3 BO	3 BO 1 X 1 H	1 BO		1 BO		1 BO 1 Q	1 E 23 BO	1 Q 12 BO		1 BO			1 H 3 BO		1 BO	3 BO			1 Q			1 BO			
Del Rio	5							2 BO		2 BO																	
Eagle Pass	34							19 BO		6 BO	5 BO 1 Q				1 BO						2 BO			1 BO			
El Paso	30	1 H								1 BO	25 BO	2 BO															
Houston	1					1 RI[o]																					
Laredo	93		3 BO		2 BO			1 Q 24 BO	9 BO	48 BO	4 BO						1 BO							1 BO			
Presidio	26										22 BO	1 BO 2 Q					1 BO										
MISCELLANEOUS																											
Mobile, Ala.	1												1 E														
Okla. City, Okla.	1																								1 CA		

Key to Host

BH	Bighorn sheep	N	Nyala (bushbuck)
BO	Bovine	Q	Host not given
CA	Canine	RI	Rhinocerus
E	Equine	RP	Reptile
H	Human	T	Tortoise
HH	Hedgehog	X	Inanimete object
IG	Iguana	Z	Zebre
		***	Include querantine stetion in Clifton, N. J.

Key to Species

b	Ornithodoros turicate
c	Amblyomme dissimile
g	Aponomma sp.
j	Hyalomma aegyptium
k	Rhipicephalus pulchellus
m	Rhipicephalus evertsi
n	Amblyomma gemma
o	Amblyomma hebraeum
p	Dermacentor hunteri
r	Rhipicephalus muhlensi

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Agricultural Research Service
Hyattsville, Maryland 20782

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